Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) An electrolytic membrane structure for a fuel cell, comprising:

an electrolytic membrane ~~(1)~~ placed between an electrode ~~(7a)~~ in an anode side and an electrode ~~(7b)~~ in a cathode side;

a catalyst layer ~~(2)~~ formed by closing up conductive particles ~~(4)~~ carrying catalysts on each face, in the anode side and in the cathode side, of the electrolytic membrane ~~(1)~~, the each face contacts to each of the electrodes ~~(7a,7b)~~; and

a boundary layer ~~(3)~~ which is adjacent to the catalyst layer ~~(2)~~ in the anode side on one face of the electrolytic membrane ~~(1)~~, is formed between a portion to be easily contacted with an oxygen gas and the catalyst layer ~~(2)~~ in the anode side, wherein the boundary layer ~~(3)~~ is formed by closing up the conductive particles ~~(4)~~ carrying the catalysts, as well as a catalyst-carrying amount in the boundary layer ~~(3)~~ is smaller than a catalyst-carrying amount in the catalyst layer ~~(2)~~.

2. (Currently amended) The electrolytic membrane structure for the fuel cell as defined in claim 1, wherein

the boundary layer ~~(3)~~ is formed so as to surround a periphery of the catalyst layer ~~(2)~~, where is easily contacted with the oxygen gas.

3. (Currently amended) The electrolytic membrane structure for the fuel cell as defined in claim 1, wherein

the boundary layer ~~(3)~~ is formed between a portion in the vicinity of a penetrating passage ~~(9)~~ by which the oxygen gas is supplied to the cathode side which is easily contacted with the oxygen gas, and the catalyst layer.

4. (Currently amended) The electrolytic membrane structure for the fuel cell as defined in ~~any one of claims 1 to 3~~ claim 1, wherein

an air gap rate between the conductive particles ~~(4)~~ in the boundary layer ~~(3)~~ is smaller than an air gap rate between the conductive particles ~~(4)~~ in the catalyst layer ~~(2)~~.

5. (Currently amended) The electrolytic membrane structure for the fuel cell as defined in ~~any one of claims 1 to 3~~ claim 1, wherein

a particle diameter of the conductive particles ~~(4)~~ in the boundary layer ~~(3)~~ is smaller than a particle diameter of the conductive particles ~~(4)~~ in the catalyst layer ~~(2)~~.

6. (Currently amended) The electrolytic membrane structure for the fuel cell as defined in claim 1, wherein

a hydrophilic treatment is carried out to the conductive particles ~~(4)~~ in the boundary layer ~~(3)~~.

7. (Currently amended) A fuel cell with an electrolytic membrane ~~(1)~~ placed between an electrode ~~(7a)~~ in an anode side and an electrode ~~(7b)~~ in a cathode side, comprising:

a catalyst layer ~~(2)~~ in the anode side and in the cathode side formed on either a face of the electrolytic membrane ~~(1)~~ or a face of the electrode ~~(7a,7b)~~, which is a contacting face between the electrolytic membrane(1) and the each electrode ~~(7a,7b)~~ and formed by closing up conductive particles ~~(4)~~ carrying catalysts; and

a boundary layer ~~(3)~~ which is adjacent to the catalyst layer ~~(2)~~ in the anode side on one face of the electrolytic membrane ~~(1)~~ or the electrode ~~(7a,7b)~~ and is formed between a portion to be easily contacted with an oxygen gas and the catalyst layer ~~(2)~~ in the anode side, wherein the boundary layer ~~(3)~~ is formed by closing up the conductive particles ~~(4)~~ carrying the catalysts, as well as a catalyst-carrying amount in the boundary layer ~~(3)~~ is smaller than a catalyst-carrying amount in the catalyst layer ~~(2)~~.

8. (Currently amended) An electrolytic membrane structure for a fuel cell, comprising:

an electrolytic membrane ~~(1)~~ placed between an electrode ~~(7a)~~ in an anode side and an electrode ~~(7b)~~ in a cathode side;

a catalyst layer ~~(2)~~ formed by closing up conductive particles ~~(4)~~ carrying catalysts on each face, in the anode side and in the cathode side, of the electrolytic membrane ~~(1)~~, the each face contacts to each of the electrodes ~~(7a,7b)~~; and

a boundary layer ~~(3)~~ which is adjacent to the catalyst layer ~~(2)~~ in the anode side on one face of the electrolytic membrane ~~(1)~~ and is formed between a portion to be easily contacted with an oxygen gas and the catalyst layer ~~(2)~~ in the anode side, wherein the boundary layer ~~(3)~~ is formed by closing up the conductive particles ~~(4)~~ to which a hydrophilic treatment is carried out.

9. (Currently amended) The electrolytic membrane structure for the fuel cell as defined in claim 8, wherein

the boundary layer ~~(3)~~ is formed so as to surround a periphery of the catalyst layer ~~(2)~~, where is easily contacted with the oxygen gas.

10. (Currently amended) The electrolytic membrane structure for the fuel cell as defined in claim 8, wherein

the boundary layer ~~(3)~~ is formed between a portion in the vicinity of a penetrating passage ~~(9)~~ by which the oxygen gas is supplied to the cathode side which is easily contacted with the oxygen gas, and the catalyst layer ~~(2)~~.

11. (Currently amended) The electrolytic membrane structure for the fuel cell as defined in ~~any one of claims 8 to 10~~ claim 8, wherein

an air gap rate between the conductive particles ~~(4)~~ in the boundary layer ~~(3)~~ is smaller than an air gap rate between the conductive particles ~~(4)~~ in the catalyst layer ~~(2)~~.

12. (Currently amended) The electrolytic membrane structure for the fuel cell as defined in ~~any one of claims 8 to 10~~ claim 8, wherein

a particle diameter of the conductive particles ~~(4)~~ in the boundary layer ~~(3)~~ is smaller than a particle diameter of the conductive particles ~~(4)~~ in the catalyst layer ~~(2)~~.

13. (Currently amended) A fuel cell with an electrolytic membrane ~~(1)~~ placed between an electrode ~~(7a)~~ in an anode side and an electrode ~~(7b)~~ in a cathode side, comprising:

a catalyst layer ~~(2)~~ in the anode side and in the cathode side formed on either a face of the electrolytic membrane ~~(1)~~ or a face of the electrode ~~(7a,7b)~~, which is a contacting face between the electrolytic membrane(1) and the each electrode ~~(7a,7b)~~, wherein the catalyst layer ~~(2)~~ is formed by closing up conductive particles ~~(4)~~ carrying catalysts; and

a boundary layer ~~(3)~~ which is adjacent to the catalyst layer ~~(2)~~ in the anode side on one face of the electrolytic membrane or the electrode, is formed between a portion to be easily contacted with an oxygen gas and the catalyst layer ~~(2)~~ in the anode side, wherein the boundary layer ~~(3)~~ is formed by closing up the conductive particles ~~(4)~~ to which a hydrophilic treatment is carried out.